

that is its habit of climbing trees just prior to or during rain storms. I have repeatedly seen them as high as fifteen feet up, and each specimen I sent you I picked off maple shade trees. At times I have seen them on fence posts and fence boards, but cannot recall seeing them on telegraph or telephone posts. For years they were found only near the Marine Hospital on the west side of the city. After years they spread along the bank for perhaps half a mile; after which they crossed the valley and intervening river Sydenham, and are now found on the east side, over an area of perhaps one quarter mile wide.

"A favorite 'roost' for them in damp weather is the round Equisetum or scouring rush stalks, where I have seen them from the size of a pea with soft-edged shells (undeveloped) up to mature specimens."

NORTH AMERICAN VERONICELLIDAE

BY H. BURRINGTON BAKER

In a recent paper, "On some North American Vaginulidae" (1927, Proc. Acad. Nat. Sci. Philadelphia 79, pp. 209-221), Dr. Hans Hoffmann criticizes strongly and, I must confess, quite justly, his impression of my attitude (1925, P. A. N. S. P. 77, pp. 157-184) towards his monograph, "Die Vaginuliden" (1925, Zeitschr. Naturw. Jena 61, pp. 1-374). I do not think that anyone realizes better than myself just how much every student of slugs is indebted to the truly epoch-making labors of Dr. Grimpe and Hoffmann on this group. From a previous chaos of misleading, conflicting and worthless descriptions, they have developed a

complete and logical system. Such a feat is very impressive, and I now realize that I did utilize somewhat the method of the old berserkers in order to fortify my courage for an attack on even minor details of its organization. I am sorry that I permitted myself the crudeness of some of those criticisms, but Drs. Grimpe and Hoffmann must realize that my vehemence is actually a compliment to the formidable strength of their own contributions.

However, the fact remains that I still believe that their exceedingly helpful (in fact indispensable) monographs are slightly marred by a disregard for priority and by a tendency to underestimate the value of other characters, than those of the verge, in the separation of species. I appreciate thoroughly their enormous contribution to our knowledge of the Veronicellidae, but I do think it was an error to add (to the 29+ earlier group-names) eight new terms, where only one (*Semperula*) was actually necessary.

In view of Dr. Hoffmann's additional contribution to the subject, I may perhaps be excused the following review of my own present opinions:

Veronicella laevis Blainville, and var. *schivelyae* (Pilsbry).

As Dr. Hoffmann and myself differ so widely in the identification of *Onchidium sloanii* Cuvier, it seems best to regard it as a nomen dubium and to drop it entirely from nomenclature. However, I must plead for the retention of *Veronicella laevis*, which name, at any rate, has never been identified with any other species than the one for which Dr. Cockerell and myself gave the first detailed descriptions and which Dr. Hoffmann now agrees is a valid and distinct one. Although I realize that such careless and erroneous work as that of Blainville does not deserve even the slight honor of the acceptance of his *Veronicella*, I still think that it is more practical to use his name than to reject it, although it is my own *Leidyula* that suffers by such recognition. Besides, the malacologists of England and America have commonly used *Veronicella* to the exclusion

of *Vaginulus*, while the Germans and French have usually reversed the process; why not compromise and retain both of them as long as they do not conflict with each other?

Veronicella moreleti (Crosse et Fischer) (+ *floridana* Hoffm.)

Originally, I thought that the ridges on the verge of adult specimens of this species were simply the result of pressure against the edge of its sheath. As a result, I drew the verge of a specimen in which they were not very highly developed and carelessly neglected to add another figure to show their extreme development. Fortunately, Dr. Hoffmann has rectified this omission; in my opinion, his figure 4 (1927, p. 216) is an excellent representation of this phase. Comparison of this figure of the verge of his "*Leidyula floridana*" with my figure of that of *V. moreleti* (1925, pl. 4, fig. 10) will show a substantial agreement in the arrangement of the ridges despite considerable difference in their prominence. For this reason, I feel certain that what he calls *L. floridana* is actually *V. moreleti*.

The most important difference between *V. moreleti* and the true *V. floridana* is the ovoviviparity of the former and the oviparity of the latter species. *V. moreleti* is still the only one known from Mexico or Central America.

Veronicella floridana (Leidy).

The prominence of the ridges of the verge also varies considerably in this species, although I believe this is partly due to differences in maturity. Here again, my figure (1915, pl. 4, fig. 13) represents a verge in which the ridges are weakly developed. However, their arrangement is quite constant and does differ markedly from that in *V. moreleti*; as I pointed out in my key, they "separate gradually without confluence and extend beyond apical 1/2 (i. e., to near base) of organ". Their extreme development, as seen especially in Cuban specimens, does approach closely the condition shown in Semper's figure of the verge of what he identified as *Vaginula sloanei*. The retractors of the

verge are variable in the large Cuban series examined by me; the more median fibers may separate from the rest of the muscle so as to form two diverging bundles. A slighter degree of this same splitting of the vergic retractor has also been observed in some specimens of *V. laevis* (Cf. H. B. B.: 1925, p. 165, pl. 3, fig. 5).

For these reasons, I am still inclined to believe that my *V. floridana* and Semper's *V. sloanei* are the same species. If "*Belocaulus sloanei*" does completely lack the vaginal pouch, it would be a species that I had never seen, while, at the same time, I would be compelled to believe that Dr. Hoffmann, in turn, had never examined an adult specimen of the true *V. floridana*. The approximation of so many of our locality records makes this seem rather improbable.

Veronicella kraussii (Férussac) ?

Dr. Hoffmann believes that this species, for which I have tentatively retained Férussac's name, is a synonym of his "*Leidyula floridana*" (= *V. moreleti*). It probably is closer to *V. moreleti* than to *V. floridana*.

Vaginulus occidentalis (Guilding).

The principal divergence between Dr. Hoffmann's classification and my own is due to his almost complete dependence on the characters of the verge; as he writes himself: "Of the interior organs only the verge may be of use for this purpose" (exact and sufficient characterization of a species). On the other hand, I am firmly convinced that, in our American species, at least, the terminations of the female genitalia are of prime systematic importance, although the difficulties in their dissection have resulted in many conflicting statements about their structure. Partly on this account, I still must consider *Vaginulus (Latipes) occidentalis* as much more closely related to *Vaginulus* and *Phyllocaulis* than to the group which I call *Veronicella*.

Since my 1925 paper, Dr. Stewart has called to my attention an earlier choice of genotype for *Vaginulus*, that of Chenu (1858, Encycl. d'hist. natur.; Crust., Moll. &

Zoophytes, p. 133), who also designated *V. tannaisii* Fér. (although he misspelled it *tannaisii*).

Dr. Hoffmann's indignant comments have also called to my attention the fact that I neglected to define my method of measurements. In my tables, the length of the slug is taken as the length of its notum along the long axis of the straightened animal, which, of course, is the sum of the distances between the female opening and the two ends of the notum (measured along the same axis). Dr. Hoffmann measures the length of the animal around its dorsum, while he determines the position of the female opening along its venter. In badly contracted and curled animals, these two sets of measurements differ considerably, so I took the sum of his distances between the female opening and the ends of the notum as the nearest equivalent to my own determination of length.

Attention is also called to two group-names in the Veronicellidae which I missed in my earlier list (1925, Naut. 39, p. 13):

Leonardia Tapparone-Canefri (1889, Ann. Mus. Civ. Genova 27, p. 331), monotype *L. nevilleiana* T.-C. (1889, p. 332), from Burma. [Canefri separates this "genus" from "*Vaginula*" on a supposed difference in position of the female opening, although he confesses he could not find it! He seems also to have lost the connection between the prostate and the hermaphroditic duct and fails to describe the verge. Otherwise, there is nothing to keep *L. nevilleiana* out of the synonymy of *Vaginulus birmanicus* Theobald (1864, J. A. S. Bengal 33, p. 243). However, it would be a shame to change the name of Grimpe and Hoffmann's *Semperula* on the basis of such a dubious description.]

Valiguna Grimpe & Hoffmann (1925, Nova Cal. Zool. 5, p. 391), authors' type *Va. schneideri* Simroth (1894, S.B. Naturf. Ges. Leipzig, 19-20, p. 7), from east Sumatra. [This is a subdivision of *Semperula* G. & H.]

THE MOLLUSCA OF CHAUTAUQUA LAKE, NEW YORK, WITH
DESCRIPTIONS OF A NEW VARIETY OF PTYCHO-
BRANCHUS AND OF HELISOMA*

BY FRANK COLLINS BAKER

Chautauqua Lake is one of the most interesting physiographic localities in New York State and seems to have been studied the least from a biological standpoint. Only three references occur which give any sort of comprehensive list of the species of Mollusca present, and but one of these (Ortmann) pays particular attention to the lacustrine character of the species. During the early part of August, 1927, a week was spent at the Chautauqua Assembly grounds and a small collection was made of those species that could be obtained from the shore. As no plans had been made for studying the lake, equipment necessary for such work was totally lacking. The success of this incidental shore work indicates that a rich harvest of interesting forms awaits the student who will make modern investigations of this lake fauna in comparison with that found in the outlet, Conewango Creek.

Chautauqua Lake is situated in Chautauqua County in the extreme southwestern part of the state. It is about 22 miles long and some three miles wide at its maximum extension, but is less than a quarter of a mile in one place. While the greatest part of the lake is relatively shallow, there are several places where the water is 60 and 80 feet in depth, the latter between Chautauqua and Long points. The northern part of the lake is shallow, not exceeding 20 feet in depth. The altitude of the lake is 1,338 feet above sea level and more than 700 feet above Lake Erie. It lies at the

* Contribution from the Museum of Natural History, University of Illinois, No. 45.